celluloid, cut in strips seven or eight inches wide, and rolled into cylinders, are thrust into the wire tube. This makes a cylinder that is soil-tight, transparent and durable. With reasonable use it will last several seasons, though the celluloid may crack or become scratched and opaque. They prove very satisfactory for capillary rise experiments and are excellent for studying distribution of water, as the inner tube can be withdrawn and unrolled, exposing the soil for easy sampling.

Charles F. Shaw
University of California

Lee's "Introduction to Botany"

To the Editor of Science: For a particular purpose I wish much to see a copy of James Lee's "Introduction to Botany," published in London in 1760, the first edition. I have inquired, but in vain, of all the large libraries in the United States, though all of them have later editions. Can any reader of Science tell me where a copy may be found in this country?

W. F. Ganong
Smith College,
Northampton, Mass.

The Leonhard Euler Society

It is well known that in 1909 the Swiss Naturforschende Gesellschaft resolved to publish the works of the extremely prolific and famous mathematician Euler. The estimated cost for the complete edition of over 40 large quarto volumes was supposed to be approximately $100,000 and was covered by about 400 subscribers (25 francs per volume, or $80,000 by subscription) and the so-called Euler-Fund resulting from contributions of governing bodies, scientific societies, industrial establishments and private persons.

So far six volumes have appeared and a seventh is in press. The work is apparently very carefully edited, and the typography is perfect.

Unfortunately the experience gained by the publication of the first volumes and the fact that a large number of additional papers and letters recently found among the documents of the Imperial Academy of St. Petersburg and in various other places will increase the total number of volumes show that the original estimate of cost is not nearly enough to guarantee a successful completion of the entire undertaking.

In order to partly meet an expected deficit of $40,000 it is proposed to found a *Leonhard Euler Society* with unlimited membership. The annual dues will be 10 francs (about $2) and membership is merely an honorary obligation to contribute to the success of a great scientific enterprise.

The originality and importance of Euler's writings, even at the present time, make it very desirable to have a uniform edition of all his works and it is so hoped that the appeal of the Swiss society will be generously answered by scientific circles.

Arnold Emch
University of Illinois

Scientific Books

Fixité de la Côte Atlantique de l'Amérique du Nord. By Douglas W. Johnson.

The quite harmonious interpretation of coast-level changes along the American Atlantic, made by scores of clean-witted and experienced observers through scores of years, are here briefly scrutinized and fundamentally contested. The supposed ups and downs of the Atlantic coast, which have been so carefully and abundantly recorded from Gaspé to the Carolinas, had promulgated a widely accepted notion that the North Atlantic seaboard was very uneasy, still undergoing warpings which might well have been in direct inheritance of its ancient Appalachian instability. Dr. Johnson's paper under the above title is not quite new, its date being rather more than a year back, but in these prolific and harlequin days of scientific ideas, it takes a little while for the leaven of reformation to register its effect. There are many excellent reasons for not taking grave exception to Dr. Johnson's general conclusion that the eastern American land is as a whole in fairly stable equilibrium—that is to say, is not now

in the act of swinging through the vertical secular period which the diastrophism of geological change calls for. Nevertheless, the first impulse of the local observer, let us suppose a geologist perfectly familiar with the undeniable indications of elevation or submergence within his own Atlantic field, is to resent this conception and conclusion of general present stability as too lightly putting aside factors of very positive significance.

The theorem is one of no little moment. Either the Atlantic coast is dancing up here and down there, as the Philistines have declared, bringing alternate hope and despair to riparian owners, or else it is standing flat and firm. We have learned that the uneasiest thing in the earth is the earth itself, the very philosophy of terrestrial equilibrium precludes the notion of too long stability or of an end to the rhythm of vertical vibration. So we may, probably we must take this notion of stability as one limited to an inappreciable change through the "present," the "historic" period, at all events one of brevity, and this is of course a different proposition than one of actual stability. I am of those who frankly resented Dr. Johnson's general conclusions, for my records are sufficiently profuse in what seemed best construed as local warpings. This was my attitude at a first reading of this and his other papers on this subject. A fallow interval and a second reading have led me to subject my data of apparent land rise and fall to his suggested treatment—to look at each by itself as a possibly localized effect of storm and stress against the coast, involving now and again the burying of woodlands, undermining and poisoning of forest growth by salt water, etc., and I am disposed to think that very many of the cases I am most familiar with on the Gulf of St. Lawrence coast may be resolved by such measures; and that, as the author himself has said, the absence of continuity in these destructive effects intimates their local character. Professor Ganong has recently suggested, concerning effects of this kind noted by him in New Brunswick, that it may be well to take record of the changes in the head-of-tide in seaboard streams. This would be an interesting procedure, but even here there is a chance for large error; granted that if the historic records of head-of-tide were trustworthy, such variables as the scouring of freshet streams and the stress conditions from off the sea must both be estimated.

There lies a large value in these conclusions of stability, though I confess to little enthusiasm over some of the procedure by which the conclusion is reached. It may be a new geographical principle that assumes differences in high level between the waters of a barachois and those of the open sea from which it is severed by a bar gullied with tidal tickles; and the vigorous attack by quiet and sheltered barachois waters against their bounding land, even when the gale blows hardest, is rather too leonine for general belief.

The geologist, in considering such facts, will not forget that in dealing with the north Atlantic seaboard, we are facing a rias coast; in other words, the ocean forces, under prevailing winds, strike the anticlines and synclines of Appalachian land, head on, beating against their ends, not their flanks. They are playing at the greatest advantage in down-breaking ridges and overwhelming valleys. In fact, in many places in the northeastern and St. Lawrence lands the waters of the new bays lie in the old synclines of the paleozoic. Under such conditions of long-continued turmoil and attack where the tide can rush with immensely increased volume and impetuosity, at greatest destructive advantage, in among the ancient troughs, there is a vast chance for the production of conditions which might on the one hand suggest subsidence where poisoned forests are left by the retreat or lodging of the salt waters, and on the other intimate elevation, as the water level in times of reasonable quiescence lies below the field of its destruction in time of stress.

If one will leave the debatable ground of the coast itself and take to the continental islands, such as Prince Edward Island and the Magdalens, the evidence of present stability is fairly beyond stricture. The Magdalens are more particularly to the point as

they are far in the heart of the gulf, away from any recent entanglement with the mainland, which is not quite so true of Prince Edward Island. Here is a cluster of rock fragments knit together by sand bars which show no single trace or semblance of recent elevation or depression. Even the broad dune-covered bars patched with stunted spruce and dune-grass afford no indication of tree burial or poisoning by encroachment of the water without or of the great lagoons within. The rocks of the islands are rather homogeneous in quality, except for the volcanics. The sandstones are retreating rapidly under the wave attacks, and while the volcanics stand out in better resistance, the broad submarine platform about the islands is uniformly smoothed. The soundings of the admiralty chart show how uniform the smoothing has been. The five-fathom platform ties all the islands of the Magdalens proper into one. The walrus bones heaped together on the top of the low horizontal rock shelves where they were left by the hunters more than a century ago, lie as they lay then, only coated with a century of soil and quietly falling away into the sea as the waters gnaw down the rocks. The five-fathom level is approximately a true wave platform, but the ten-fathom level, which outlines a platform of a hundred times the present superficies of the surviving islands, is unquestionably a wave-cut level deeply submerged. In this ten-fathom level there is no appeal from the evidence of a submergence at a time not far back of the present or from the conclusion that the Magdalens are mere interwoven shreds of a once great island, but we must not be pressed to declare how long ago the negative movement ceased. Not long, probably; but for this day, this present, we lack the right to say that there is any movement in process, up or down. A clue is suggested as to the length of this actual stability; facing the great interior lagoon bounded by the double chain of sand bars are ragged rock cliffs, with bare faces that never could have been torn by the feeble waters of the lagoon even in times of tempest. These cliffs, now enmeshed by sand and facing only placid waters, were made ragged and bare in the days when the sea itself pounded at their base. Since then the whole network of sand has been built up about them, and yet all this without any definite indication of change of water level.

John M. Clarke

Einführung in die Mathematik für Biologen und Chemiker. Von Professor Dr. Leonor Michaelis, Privatdozent an der Universität Berlin. Verlag von Julius Springer, Berlin. 1912.

It is the purpose of this book to bring before the chemist and the biologist, in convenient form, some mathematical information that is necessary to an understanding of methods that are being used more and more in chemistry and biology. The first chapter of the book gives a recapitulation of some very elementary mathematics, including plane geometry, the most elementary algebra and trigonometry. The second chapter is given to the study of some very simple functions such as are usually treated in a first course in analytic geometry. The main part of the book is given to the calculus, to differential equations, and to applications to chemistry and physics.

The author has succeeded in bringing a large amount of useful material into a small space, and the book will perhaps serve well its purpose. Although the reviewer recognizes that, in an elementary book, one may sacrifice too much simplicity for the sake of precision in the statement of fundamentals, there is some danger that the chemist and biologist will get incorrect views as to the precision of the processes of differentiation and integration when presented as they are in this book. To illustrate, on p. 107, we find the statement

$$\sin\frac{dx}{2}=\frac{dx}{2}$$

and analogous statements are to be found at many points in the book.

I note the following numerical and typographical errors: Line 23, p. 37, should contain 0.7071 instead of 0.7069, and line 9, p. 107, should have